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TABLE OF CONTENTS.

PAGE

EDITORIAL ARTICLES:—Hardy Trees for a Trying Climate.—The Oneora Club and its Chance for Usefulness.—Note 265
The Squares of Paris (with illustration) . . . . . *Henry S. Codman.* 267

FOREIGN CORRESPONDENCE:—London Letter . . . . . *W. Goldring.* 267

NEW OR LITTLE KNOWN PLANTS:—Magnolia Thompsoniana (with illustration), *C. S. S.* 268

CULTURAL DEPARTMENT:—Herbs for Seasoning . . . . . *W. Falconer.* 268
Strawberry Notes . . . . . *E. Williams.* 270
Some Floral Novelties . . . . . *W. F.* 270
Single Paeonies . . . . . *J. Douglas.* 270
Cœlogyne Dayana.—The Rock-Garden.—A Good Rose.—Weeds.—Armeria vulgaris 271

PLANT NOTES:—The Double-Flowered Chinese Crab Apple (with illustration), *C. S. S.* 272
Notes from the Arnold Arboretum . . . . . *J.* 272

THE FOREST:—The Forests of Europe as Seen by an American Lumberman, *H. C. Putnam.* 274

CORRESPONDENCE 274
RECENT PUBLICATIONS 275
PERIODICAL LITERATURE 275
RECENT PLANT PORTRAITS 275
NOTES 276
ILLUSTRATIONS:—Plan of a Paris Square 267
Magnolia Thompsoniana, Fig. 43 269
The Double-Flowered Chinese Crab Apple, Fig. 44 272

Hardy Trees for a Trying Climate.

ABRUPT transitions between extremes of heat and cold, and of dryness and humidity, render the climate of the prairies a trying one for many forms of plant life. This is especially true of fruit trees and other plants which have originated under the milder skies of western Europe or in the more equable climate of the Atlantic seaboard. During a few years past the orchards of the North-west, planted largely with trees derived from foreign stock but which will flourish in the East, have suffered so severely as to convince fruit-growers that hardier races of trees must be planted, or their industry must be abandoned. How to secure these hardy trees is the problem upon which many active minds are now at work. The importation of varieties from climates similar to that of the prairies is being tried on a large scale. Apples, Pears, Cherries and other fruits from the central plain of Europe have been widely distributed, through the efforts of Professor Budd and others. But many close observers and experimenters advocate, as a preferable plan, the breeding up and improvement by selection of the wild fruits already found in the West, just as our most vigorous Raspberries and Grapes have been produced from native species. Perhaps both methods will prove helpful; but long and patient study will be needed before a race of trees is produced with constitutions sturdy enough to resist the severities of the climate and at the same time yielding fruits so delicate in quality as to satisfy an educated taste. The work of improving fruits and producing those adapted to any given locality will devolve largely upon nurserymen, and it must, in the main, be a labor of love, for the profits arising from study and experiment of this sort are remote enough. In the course of his admirable address at the late convention of American Nurserymen, at Detroit, Mr. C. L. Watrous, the President, dwelt upon this theme at length, and our readers will thank us for quoting this instructive extract:

The cycle of unfavorable seasons, seasons of extreme heat in summer and extreme cold in winter, which have proven so destructive to nurseries, orchards, and, in fact, to all species of fruit-bearing trees and plants in many parts of the West, seems to have run its course, and the lessons taught by it may more than compensate for the losses. It has been observed everywhere that varieties of trees and plants indigenous to that region, or descended from such indigenous forms, have suffered least, if at all. In regions where all fruits descended from foreign ancestors have been crippled, the native forms and their derived varieties have suffered little.

Among fruits, the Apple, most important of all and wholly of foreign ancestry, has suffered most grievously, the Cherry and Plum, also of foreign ancestry, suffering the next heaviest losses. Our Grapes, east of the Rocky Mountains and outside of green-houses, being largely of native ancestry, are still ready for business or pleasure. The Raspberries, Blackberries, Strawberries and Gooseberries, all of native stock, are ready for use. Happily for the country, all these last named fruits have been so thoroughly emancipated from their taint of foreign ancestry as to be thoroughly reliable throughout all the regions indigenous to their wild relatives. It only needs that painstaking and conscientious men shall originate new and better adapted forms in every locality whose conditions render such labor necessary, and shall seek out and propagate such promising chance seedlings as may from time to time appear, in order that each botanical region may have an abundance of varieties well adapted to its needs.

Throughout all of the great empire known as the north-west, native forms of the Plum have now almost or quite supplanted the foreign stock. The Cherry and the Apple still remain to be carried through the same course of evolution, by seedling variation, that has already been passed through by the Grape, the Raspberry, the Blackberry, the Strawberry and the Gooseberry. A glance into the list of the venerable American Pomological Society will show how very few years have been spent in changing the lists of approved sorts from foreign to native names and the different native species into what now supply so large a share of the most pleasure-giving and health-sustaining part of our national diet. The same broad road to improvement is open in case of the Cherry, and especially of the Apple. At the risk of seeming extreme in this regard, I am willing to go on record before you all, as saying that I believe sufficient progress has been made to justify a confident expectation that within the lives of young men who hear my voice to-day, the common and universally propagated varieties of the Apple throughout the great north-west will be the descendants of the native Crab Apples, indigenous to the glades and thickets of the prairies, which have through ages unmeasured and immeasurable by any standard of ours, by variation and natural selection, adapted their race to every vicissitude of their climate and soil, as none of foreign ancestry ever can, except by the same measureless course of adaptation through seedling variation.

This is not all as visionary as it might appear. Already have been exhibited two different varieties of Apples bearing unmistakable proofs of legitimate descent from native thickets, which have excited favorable attention. In many different places careful and zealous experimenters are developing these, by cross fertilization and otherwise, with high hopes for the future. There is no reason why the Cherry should not tread the same king's highway towards perfect adaptation. I hold that a perfectly adapted Grape or Apple should bear its fruit, and, with proper care, be as long-lived as its wild brethren in the thicket. Why should not this be so, as well as that the civilized brain-worker should, by proper living and care, not only live as long in useful activity, but far outlive, the days allotted to the savage roaming the forests and prairies of the same region?

The considerations here urged regarding the superiority of native forms of fruit-bearing trees and plants, apply with no less force to trees and plants for ornament, shade, shelter and timber. The best authorities now agree that American trees are the best for America. The foreign trees with which so many of the older parks and pleasure grounds of the East were planted, from lack of suitable and cheap trees of our own native varieties, are steadily failing, when their days of greatest use and beauty should be just upon them. One of the most eminent authorities in America, in considering these failures, has lately said in bitterness of heart, that if these losses and failures, as lamentable and almost irremediable as they are, will only teach men the folly of proclaiming the worthiness and adaptability of any foreign tree or plant, before it has had a trial of a time extending at least through a period equal to the natural life of a single individual of the species, these losses and their lessons will not have been too dearly bought.

Every nurseryman in the nation should feel his responsibility to himself and to his generation, not only to do what he

can towards originating new and more perfectly adapted varieties of fruits and plants, but also to be on the watch for new and promising forms of chance origin, and to see that each has adequate trial and honest judgment in at least its own botanical region. After due trial and proved worthiness the promising varieties will be propagated by grafts, buds or layers, and disseminated at first in their own botanical regions, and afterwards in other regions, if found able to endure the changes. I fear the most of us have very inadequate ideas of the strain put upon the vitality of trees and plants, by transplanting them to different conditions of climate and soil. In a late most admirable report of the State Geologist of Indiana, is the statement and proofs of the fact, that there exist within the boundaries of that one state no less than seven distinct and well defined botanical regions, each marked by a preponderance of certain native plants, and the absence or scarcity of others, as shown by the lists submitted. This should be a lesson to each of our fraternity, teaching him to test the favorites of distant regions with no more than hopeful distrust, and to prove them well before proclaiming them to his friends, his customers, as worthy of confidence and the investment of money.

By allowing the glamour of a foreign name and the deceptive haze of distance to cloud their judgment, many honest men have had more prophecies to "take back" than have added to their reputations. Careful and intelligent experimentation is the daily duty of the nurseryman. The government experiment stations now provided for in every state, must be aided and largely guided by members of this fraternity in matters horticultural. The task of bringing our promising wild fruits into the realm of civilized usefulness, by change of condition, seedling selection, and cross fertilization with allied forms of native or foreign ancestry, already highly developed, may with especial fitness be vigorously pushed there. It is for our members to furnish the material for experiments and to give freely of their advice and experience as to ways and means most promising of good results. There is no reason to doubt the permanence of these experiment stations nor their generous support by the government, two considerations which entitle them to be used as the head centres of horticultural experimentation in every state, with the full and generous support and aid of every one interested in this work. The road is long, too long for individuals, but with properly directed effort, so that no steps be lost at these permanent stations, we know that the gains must be substantial and certain from year to year and from generation to generation.

The Onteora Club and its Chance for Usefulness.

A NUMBER of capitalists in this city have recently acquired possession of a tract of land more than 1,000 acres in extent occupying the slopes of the mountains near Tannersville, in one of the most picturesque and interesting regions of the Catskill country. Their object is to provide for themselves and their friends retired and pleasant sylvan homes in connection with a small hotel. There is nothing strange or unusual in this; it is what has been done a hundred times before in different parts of the country. The fact, however, that the care and development of the forest which still covers their land should form any part of a general scheme for the improvement of the property, or that the forest should be considered at all under these conditions by business men, is a matter of very considerable interest, as indicating the advance made in this country in the education of the public with regard to the forest and the part which it plays in the economy of nature. Ten years ago, a body of capitalists buying a tract of land for the purpose which has led to the formation of the Onteora Club would hardly have entertained the idea that the care and improvement of the trees which they happened to find on their purchase was a good business investment, or that such property was valuable in proportion as it was permanently covered with vigorous and healthy forests. That they now value the trees, and not only desire to preserve the forest from further encroachment, but to improve it, is a sign that the words which have been spoken in this country of late years for the forest and for forest-preservation have not been spoken quite in vain; and that at last business men can realize that there is more money in taking care of trees than there is in allowing them to be destroyed.

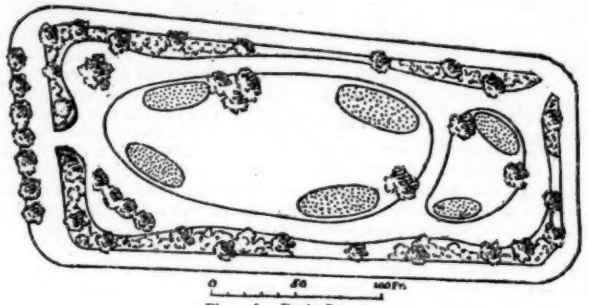
This is only a straw, perhaps, but it is a straw showing that the tide has turned, and that the time will come in America, as it came long ago in every other civilized country, when the value of the forest will be recognized, and the laws upon which the life of the forest depends will be clearly understood and freely obeyed. The leaders in the forest movement must not forget, however, that their task is only just begun. They may have kindled a feeble spark of interest in forest-preservation; but it is in serious danger of being extinguished, unless they can continue their work with unabated vigor and enthusiasm and with broader and more exact knowledge. They must remember, too, that it rests with them not only to teach the people of this country what forests are and what will be lost in their destruction, but that they must furnish definite instruction as to how these forests are to be preserved and developed. These are subjects upon which our people are supremely ignorant. It is easy to say the forests must be preserved; it is much less easy to explain how this is to be accomplished, or what practical measures must be applied in any particular case to produce certain results. General laws of forest management, perhaps, are not difficult to lay down, but special treatment for special cases can only be reached by experience based on experiments, carefully conducted through long periods of time. Such experiments are just what the Onteora Club and other associations are in a position to carry on, and they are what this country needs in order that systems of forest management may be devised and proved by the test of time. Such associations certainly have it in their power to perform an important public service in adding to our slender stock of exact knowledge concerning the best methods of forest management for the United States, and while doing this they can at the same time greatly increase the value of their property.

It is not easy to explain why certain plants look distinctly in place in certain situations and why other plants look as distinctly out of place in the same situations. This is a matter which nature perhaps has settled for us. It is certain at any rate that combinations of plants other than those which nature makes or adopts, inevitably possess inharmonious elements which no amount of familiarity can ever quite reconcile to the educated eye. Examples of what we wish to explain abound in all our public parks, and especially in Prospect Park in Brooklyn, where there is more of nature than in any other great park, and where along the borders of some of the natural woods and in connection with native shrubbery great masses of garden shrubs, Diervillas, Philadelphus, Deutzias, Forsythias and Lilacs, have been inserted. These are all beautiful plants. They never seem out of place in a garden; but the moment they are placed in contact with our wild plants growing naturally as they do, fortunately, in the Brooklyn park, they look not only out of place, but are a positive injury to the scene. It is not that their flowers are too showy or conspicuous for such positions. The flowers of some native shrubs like the Elder, the Flowering Dogwood and the Viburnums, are as showy as those of any garden shrub. The reason is rather that we have become accustomed to see certain plants adapted by nature to fill certain positions in combination with certain other plants in a given region; and that all attempts to force nature, so to speak, by bringing in alien elements from remote continents and climates, must inevitably produce inharmonious results. Landscape gardeners have rarely paid much attention to this subject, or sufficiently studied nature with reference to the harmonious combination of plants in the construction of scenery, and especially of scenery intended to produce upon the mind the idea of repose. Nature, nevertheless, is the great teacher to which the artist who would hope to imitate her, however crudely, must ever turn for instruction and for inspiration.

The Squares of Paris.

ONE of the best features of the park system of Paris is the number of small squares scattered about in the different quarters of the city. The parks themselves, especially the larger ones, are at such great distances from the crowded centres of population, that the working classes, except on Sundays and holidays, seldom have a chance to visit them, so that these squares admirably serve the purpose of keeping the children out of the streets, and of allowing the poorer people, in the few hours of leisure they have during the week, to get a breath of fresh air and a glimpse of green.

A stranger, on first entering one of them, marvels as he sees how neatly they are kept while so thickly crowded with visitors, reading, working or playing. In plan they are usually quite simple, as the accompanying diagram will show. A broad gravel walk, ten or twelve feet wide, following near but separated from the boundary by occasional shrubbery plantations, encloses a quiet piece of lawn sufficiently open to get a glimpse through to the opposite end, but planted on the sides with trees, shrubs and foliage plants.



Plan of a Paris Square.

There are few attempts at fancy gardening, but much care has been taken to select hardy shrubs and plants with the view of avoiding bare and empty beds during the winter. The condition of the turf is everywhere excellent, for water is freely used, and suitable small playgrounds are provided for the children, which serve the purpose of keeping them off the grass. These playgrounds, which are an admirable feature, are generally formed by simply widening the walks in the corners and planting enough trees there to afford ample shade. There are always one or two flower beds, which are kept bright and attractive during the spring and summer by a constant succession of showy flowering and foliage plants. Permanent seats are provided, but not in sufficient numbers to accommodate every one, but for a very small sum a chair for the whole morning or afternoon can be hired and you can move it about at will.

The only serious fault in all these squares is the stiff and formal appearance of the shrubberies. Almost without exception these plantations are in the form of regular figures—circles, ovals or ellipses—and they are always planted on slight mounds. These two facts detract very much from any effect of naturalness, and it seems a great pity that, when it is so easy to give a varying outline to the groups, it has not been done. It would also be an improvement to plant the borders of these beds with plants or shrubs of low, half trailing habit, and thus, in a measure, hide the sharp, stiff outline between the turf and the dug ground of the bed.

Of course, there are many variations from the typical plan. The Square des Batignolles contains about three acres and is one of the largest in Paris. It is situated on sloping ground, with an open lawn in the centre, through which runs a small winding stream, which broadens out into an almost circular pond at the lower end. The course of this stream, in order to make a little variety, is occasionally interrupted by a group of rocks, which cause it to widen out into small pools, the margins of which are attractively planted with aquatic plants.

The Square des Arts-et-Métiers is on quite a different plan. Here a broad walk runs down the middle, giving a fine view of the building at the further end. It is surrounded by a handsome stone balustrade, and following this, on the inside, is a strip of turf and shrubbery about eight feet wide. All the rest of the surface, with the exception of two fountain-basins, is of gravel, and is thoroughly shaded by eight rows of large Horse-Chestnuts, whose branches touch each other, and thus form a very dense shade over the whole. Seats are provided here in plenty, and as it is one of the most crowded parts of the city, it is always full of people.

The Square du Temple is one of the prettiest of all the Paris squares, or would be if the attempt had not been made to adorn it with statues. There are four of them here, and they detract much from the quiet and repose of the place. At the upper end there is a small cascade falling over artificial rockwork into a rather too formal pond. The trees in this square are exceptionally good.

These are a few of the more important squares, but by no means all, for in Paris there are no less than seventy breathing places, not counting the boulevards and other tree-planted streets. They are usually most attractive spots and teach a lesson which might very well be copied in many of the crowded cities of our country.

Paris. *Henry S. Codman.*

Foreign Correspondence.

London Letter.

AMONG the plants certificated at the last meeting of the Royal Horticultural Society, the greatest novelty, in my opinion, was the Japanese shrub, *Cæsalpinia Japonica*, shown by Messrs. Veitch, and which has proved quite hardy in Coombe Wood unprotected. It has leaves about a foot long, divided into small pinnæ, like a Mimosa and very elegant. The flower spikes are borne at the tips of the shoots, and are erect, about eight inches high, carrying numerous flowers in a loose way. They are about an inch across and of a brilliant yellow. The whole spike so closely resembles that of one of the Cassias (*C. arctura*) that one could scarcely tell the difference without close inspection. The flowers are so showy and the foliage so elegant that the committee were unanimous in awarding a first-class certificate, and every one looks upon it as a valuable addition to hardy shrubs. Another first rate, hardy, Japanese shrub, with evergreen foliage, from Messrs. Veitch, was certificated. This was *Daphniphyllum glaucescens*. It has a dense, bushy growth (about three feet in height in the plant shown), with leaves reminding one of *Rhododendron Catawbiense*, but larger and thicker. They are pale green above, and of a glaucous hue beneath. The specimen shown was not in flower, but there are flowering plants of it at the Coombe Wood nursery. The berries are said to be ornamental, but I have neither seen flowers nor fruit. I have seen the plant for some years past growing in exposed places, and believe it will prove a valuable evergreen shrub here, and probably it may be hardy on the coast and in warm districts of the United States.

A graceful variety of the grass *Eulalia Japonica* likewise came from Messrs. Veitch, and received a certificate. It is named gracillima, and most appropriately. The leaves are very long, not more than one-sixth of an inch broad, and elegantly recurve on all sides. The mid-rib is white, as in the variety univittata, though, perhaps, not so pronounced. There was but one opinion among the committee, and this was that the new grass was a real acquisition.

Only one Orchid received a certificate (a fact worthy of note), and this was the new *Epidendrum atropurpureum*

Randii, or, as some of your readers may prefer to call it by its synonym, *E. macrochilum Randii*. It is one of the evergreen Epidendrums, with egg-shaped bulbs and stiff, narrow leaves, and a densely-flowered, erect spike. The flower, about 1½ inches across, has olive green sepals and petals, and a broad, wedge-shaped lip, pure white, with carmine blotch in the centre. The perfume is delicious, and another good point in it is that the flowers endure a very long time, several weeks, in fact, if kept cool and in a dryish house. There is not such a great difference between the old *E. macrochilum*, pure and simple, and the new one, but the latter seems much freer in growth and flower. It was shown by Sir Trevor Lawrence, who also showed, besides other choice Orchids, a marvelous specimen of *Dendrobium Bensoniæ*. It consisted of about a dozen pseudo-bulbs, each fifteen inches high or more, and every one was densely covered with bloom. But alas! it was an imported plant, and never again will the bulbs put out such a wealth of bloom.

An addition to the numerous race of green-house Rhododendrons has been made by Messrs. Veitch, who have done more in the improvement of this race of shrubs than any one else. They first intercrossed the Malayan *R. multicolor Curtisii*, a small flowered species of dwarf, straggly growth, with another species named *R. Teysmanni*, which has large, bold, pale yellow flowers, the result being a variety called Queen of Yellows. They have again crossed this with *R. Curtisii*, and obtained a splendid novelty called Hippolyta, which is quite a "break" as regards color. The value of *R. Curtisii* lies in its rich carmine crimson colored flowers and this tint has been infused in the cross with Queen of Yellows. The flowers of Hippolyta are of beautiful shape and of a color as rich as those of its parent. We shall have to wait a few years before we can realize what this superb race of Rhododendrons will be; we want to see them on specimens a yard across. I saw some of the older sorts not long since in Fisher's nursery at Handsworth, where these Rhododendrons are grown to perfection.

The display of fancy Pelargoniums was remarkable and the peonies of Messrs. Kelway of Langport still more so. Two thousand blooms were shown, many of them as large as a child's head, of richest color, and a fragrance rivaling that of a Tea Rose. But one new Rose was shown, a beautiful single flowered one, sent by the Rev. H. Dombrain under the name of Striped Briar. The flowers are as large as those of *Rosa canina* (Dog Rose), of a deep and pleasing rose-pink with splashes and flakes (not stripes) of white, while the foliage was scented like that of the Sweet Briar. But the experts said that it was not a variety of the Sweet Briar (*R. rubiginosa*), while others thought it was, so it was decided to send the specimens for identification to Kew. Everybody at the meeting was charmed with it. *W. Goldring.*

London, July 2d.

New or Little Known Plants.

Magnolia Thompsoniana ×.

THE interesting and handsome Magnolia figured upon page 269 of the present issue originated, according to Loudon, in the nursery of a Mr. Thompson, at Mile End, in England, eighty years ago. There are colored figures of this plant in the *Botanical Magazine* (*t.* 2164), in Hilairé's "*Flore et Pomone Francaises*," v., *t.* 451, in Reichenbach's Exotic Flora, *t.* 342, and in the "*Sertum Botanicum*," v., *t.* 28; but none of these are good or do justice to its beauty. It has been considered a large flowered variety of *M. glauca* (var. *major*, *Botanical Magazine*, *l. c.*), and by some authors a hybrid between *M. glauca* and *M. Umbrella*. It is probable that the latter supposition is correct, as, although the leaves of *M. Thompsoniana* cannot be distinguished from those produced on a vigorous plant of *M. glauca*, the leaf buds are quite glabrous and destitute of the silky hairs which cover those of that species, while the broad, strap-shaped, reflexed sepals, and obovate-oblong petals, contracted into a narrow claw, distinctly belong to *M. Umbrella;* the flowers, rather more than six inches across when fully expanded, being intermediate in size between those of the two species. They have, on the other hand, the delicious fragrance peculiar to the flowers of *M. glauca*. So far as I know, *M. Thompsoniana* does not produce fruit; and it is a curious fact that it is much less hardy and much less vigorous than either of its supposed parents, suffering here always, unless carefully protected in winter, and rarely rising above the size of a small bush, although Loudon, in his "*Arboretum*," published in 1838, speaks of trees at Mile End more than twenty feet high. I shall be glad to see fruit of this plant and to learn if it grows more vigorously in Europe than it does in this country. Our illustration is from a drawing made by Mr. C. E. Faxon of a flower from Mr. Parkman's garden in Jamaica Plain. It shows the three sepals reflexed before the full expansion of the petals.

C. S. S.

Cultural Department.

Herbs for Seasoning.

MINT, Sage, Thyme, Parsley, Chervil, Savory, Tarragon, Basil, Marjoram, Chives and Shallots are the herbs most generally used in the kitchen, but in books and catalogues a number of others, Clary, Samphire and the like, are included, though they are very seldom used. Some of these herbs—Parsley, Mint and Chives, for instance—are indispensable in the smallest cottage gardens, and nearly all are grown and called for in large private gardens. But apart from their utility as herbs used as seasoning, most of them—say Sage, Thyme, Sweet Basil, Marjoram and Winter Savory—are favorite garden plants, and are grown, like the Sage for its pretty flowers in June, and the Thyme for its fragrance at all times.

Spear Mint is a hardy perennial easily grown in any good moist garden soil. If increase is wanted dig up a clump and divide it and replant. The same plantation will last for years. In order to have green Mint early in the year lift some roots in November, plant them in shallow boxes and in January or February bring these into the green-house; or plant a few clumps in a warm frame.

Sage is a hardy perennial easily raised from seed sown in spring. The same plants are good for many years, but in order to have vigorous stock it is well to renew them every few years, and for this may be used some of the many self-sown seedlings that come up every spring about the old plants.

Lemon Thyme is a very sweet herb, a hardy perennial, easily raised from seed sown in spring, and lasts for years; but it is well to renew it every second or third year. The broad-leaved English and sand Thymes are not as good for flavoring as the Lemon Thyme.

Curled-leaved Chervil is a short lived annual very much used by French cooks. It should be sown two or three times a year, and in some part of the garden where it may be allowed to sow itself, as it always grows better in this way than when hand sown. Seeds over a year old will not germinate. That sown in fall survives the winter perfectly.

Sweet Basil is a fragrant annual, easily raised, but only occasionally called for; indeed it is worth more as a sweet-smelling ornamental plant than for use in the kitchen. Sweet Marjoram is a slender growing annual, but easily raised from seed. It is used a good deal, and more esteemed for flavoring than Pot Marjoram, which is a hardy perennial, and a small, neat growing plant, but not very hardy.

Summer Savory is an annual of slender growth, but easily grown in light rich land. Winter Savory is a small plant, a perennial, and not hardy here, but raised from seed sown in spring it soon forms neat little plants. The Summer Savory is the one most esteemed for flavoring. Tarragon is a hardy perennial and much used by English and French cooks. It is a vigorous growing plant, spreading at the root a good deal and loving rich soil. Although the clumps will last for years, it is best to lift, divide and replant them every second or third year, to invigorate and keep them within bounds.

Although the plain leaved Parsley is the best flavored, there is so little difference between this and the curled-leaved varieties, that most persons prefer the Moss Curled, on account of its pretty appearance in garnishing. Celery is useful all the year round. So long as blanched Celery is on hand

Fig. 43.—Magnolia Thompsoniana ×.—See page 268.

—from September till first of May—that will do, but during the summer season a supply of young plants must be maintained to furnish green leaves for flavoring.

Chives are very hardy and easily grown and multiply exceedingly. They are the earliest of our garden plants to start to grow. Lift, divide and replant them at least every second year. A few clumps will suffice. For winter use lift a few in the fall, plant them in shallow boxes and bring them indoors. Shallots especially with French cooks, are more esteemed than any other member of the Onion Family; they use the small pear-shaped bulbs—or cloves, as they are usually called—whole. Planted in spring in rows fifteen inches apart, four or five inches apart in the rows, and three inches deep, in rich ground, they grow and increase very satisfactorily here. They are kept over winter like Onions. While some or most of these herbs should be grown in all well-regulated gardens, a few plants—Parsley, Celery and Shallots excepted—of a kind are enough. And in order to have them for use in winter or at any other time when not growing green in the garden, a part should be gathered and dried. Just as they are coming into flower is the best time to cut them, then tie the plants into small bundles and hang them up to dry. *W. Falconer.*

Strawberry Notes.

THE Strawberry season of 1888 came far short of fulfilling its early promises in this region. The season opened about two weeks later than the average, as our first picking of any account occurred on the 15th of June, though the berries began to color on the 10th, and the last picking was made only a week later than usual. With few exceptions the crop was light. Probably the peculiarity of the season had much to do with this, but the chief cause in my own case was the brown rust, which rendered some varieties absolutely worthless. Some years ago I fancied that certain weather conditions favored the development of this fungus, but it appeared this season under conditions directly opposed to those heretofore considered favorable for its growth.

I am inclined to think now that the young blood of new varieties of vigorous habits is for a time less liable to suffer from this cause than our older sorts. But this is by no means certain, and the subject is one well worthy of study and investigation at the Experiment Stations. If there is any remedy to prevent the ravages of this disease it is one that I have never tried. Aside from the damaging effect this fungus had on the quality of the fruit, it seemed that berries generally of all varieties, even from healthy plants, fell short of reaching their highest quality, and this view was corroborated by the opinion of many others.

Prince, Jersey Queen, Sharpless, Manchester and Crescent are still standard sorts, and the latter, for vigor, health and productiveness, can be depended upon. Manchester seems more and more inclined to rust. Among the newer varieties the Davis is so nearly a reproduced Sharpless, that no one could separate plants or fruit if put together. Jewell, so large and attractive, shows such a tendency to rust on my grounds that I shall have to give it up. May King has proved vigorous, healthy and productive, a bright, attractive berry of good size and fair quality. Belmont, large, showy and of good quality, but like the Sharpless, not an abundant cropper. Henderson and Cornelia are not of much account, either in growth or in productiveness. Cohansey must be abandoned as worthless after two years' trial. Whatever it may do elsewhere, in this part of New Jersey it refused to make a respectable growth.

Among varieties fruiting the first time this season is the Jessie, which is promising, and, so far, healthy. The berries are of fair size under ordinary culture, and the quality is good; perhaps further trial may prove it very good. As I only saved about twenty per cent. of the plants set last season, I had but a limited show of fruit. I think it will do to plant more of it. Another one fruiting here for the first time is the Pearl, which is as promising in all respects as the Jessie. The berries were quite as large and handsome, with a general tendency to a reflexed calyx, a feature I always admire—and in quality it does not suffer in comparison with the more highly extolled and widely known Jessie.

At the exhibition of the American Institute Farmers' Club, on the 21st of June, Mr. H. H. Alley, of Hilton, N. J., made a fine show of a dozen seedlings of prodigious size and bearing qualities, conspicuous among which was one named Hilton, which the judges endorsed as "very large and firm; color, scarlet; good shape; sub-acid; good flavor; said to be a great bearer." Mr. J. J. Davis, of Washington, N. J., also exhibited five of his seedlings, remarkable for size and appearance. Those numbered 10 and 20, very dark crimson, were preferred by the raiser. Both had been ripe for two weeks, but the judges thought his No. 25 the best, of which they report as follows: "A very firm berry; color, very bright scarlet; quality, good; flesh very firm and solid; very promising." *E. Williams.*

Montclair, N. J.

Some Floral Novelties.

Salvia prunelloides, from the Jorullo Mountain, Mexico, used to be grown in our gardens years ago; then it became lost to cultivation, and has only this year been re-introduced to general cultivation. It is a small-growing, perennial species, tender here, but it can be enjoyed in perfection if treated as an annual. It has small, pale green leaves, and small, bluish-purple flowers. It is not striking or beautiful enough to become a favorite in gardens, and, probably, it will soon drop into oblivion again.

Torenia Fournieri, var. White Wings.—*Torenia Fournieri* is now a familiar annual in gardens and well worthy of cultivation. It forms neat bushy plants, eight to ten inches high, which are covered with pretty violet-blue flowers all summer long. In White Wings we have the exact counterpart of the species, except that instead of being violet-blue, the flowers are white. It comes true from seed. While it is a distinct and desirable variety, of the two, judging them as they are growing and flowering here side by side, the blue one seems preferable.

Salvia coccinea is an old and common inmate of gardens, and is, most always, treated as an annual. The typical form grows four feet, often five feet high, and, unless staked, its wand-like branches are apt to break down by their own weight. But the dwarf variety known as var. *pumila*, about half the height of the old form, is a comely plant and the one now usually grown. A new variety, with pure white instead of scarlet flowers, and known as var. *lactea*, has now been sent out. We find it of medium size, and just as free a grower and bloomer as the old scarlet flowered varieties. But, except for variety's sake, neither the scarlet nor the white forms are desirable enough for small gardens; among scarlet Salvias *S. splendens* still remains the most useful sort.

Zinnia liniaris is a pretty little species from Mexico now in bloom with us. It is of dwarf, bushy habit, has slender, narrow leaves, and bright golden-yellow flowers, and, like nearly all Zinnias, seems to be a free flowering plant. Its flowers remind one of those of *Z. Haageana*. But in its present condition it is not likely to become a popular garden plant. Sent out this year. *W. F.*

Glen Cove.

Single Pæonies.

THE Pæonies have been exhibited in excellent condition at the metropolitan flower shows this year, the double varieties of *P. albiflora* being numerous and very good, and the colors of the most varied kinds. Some of them are deep purple, purple-crimson, crimson, pink, delicate rose, blush white, etc. Amongst them the single forms of this species were very attractive to the visitors. They were distinct in character from the double varieties, and are certainly more elegant.

The many species now in cultivation in our gardens form a noble and distinct feature in May. We grow thirty-three species and varieties of species, but this being a rather late season they were not fully in flower until the last week in May. Although not much known at present in English gardens, they were cultivated many years ago, and some of the prettiest of them have been longest known.

P. tenuifolia is a very elegant plant with finely divided leaves, distinct from any other. The large crimson flowers with yellow stamens are very striking. It is figured in the *Botanical Magazine* (tab. 926), where it is stated to grow "naturally in the Ukraine and about the precipices on the borders of the Volga," etc. The first to flower with us was *P. peregrina*, another crimson-flowered Levantine species with large bold leaves, but not so striking as those of some kinds. It was cultivated by Miller, and also by Mr. Salisbury at Brompton. The next to open its flowers was *P. decora*, not the most handsome species, but the flowers were a distinct purplish rose. The downy leaves of *P. mollis* are distinct from those of any other Pæony; the flowers deep purplish red; anthers bright yellow. *P. aretina* and *P. aretina Baxteri* are two good sorts; the first has rosy crimson flowers, and the variety *Baxteri* crimson; they flowered about the same time. The common *P. officinalis* in its single state was very pretty, the flowers being of a rosy tint, the petals rather crumpled. This plant was cultivated in England as long ago as 1548. In Parkinson's time single and double forms were cultivated. The variety anemonæflora flowered with us also. In this variety the flowers are purplish crimson, and the yellow stamens are replaced by numerous purplish filaments. Both are figured in the *Botanical Magazine*, the latter at tab. 3175. The plant had been sent from a certain Prince de Salm Dyck about 1830. *P. anomala* came next in order; the flowers crimson, set off by lanceolate leaves. It is not very striking as a garden plant, but interesting as a distinct form. It is figured in the *Botanical Magazine* (tab. 1754), where it is termed the jagged-leaved Siberian Pæony. It is stated to perish in our gardens in winter, not from cold, but from wet. In our garden it stands well enough. *P. Emodi* was next in order; it has large cream-colored flowers with golden anthers. It is also a *Botanical Magazine* plant, figured in 1868 from a plant grown at Glasnevin by Dr. Moore. It is said to be more tender than any other species, being a temperate Himalayan plant from Kumaon to Cashmere. *P. triternata* has flowers of good form, rose-colored. This is distinct both in leaf and flower. *P. peregrina compacta* and *Byzantina* also flowered with this group, and are distinct from the species. All the above flowered the last

week in May and up to the 6th of June, when the following were noted: *P. humilis*, a dwarf species with rosy purple flowers and yellow stamens, the plant dwarf and compact; *P. Wittmanniana*, creamy white, very distinct. This is supposed to have yellow flowers, and was introduced so long ago as 1842. It was discovered by a certain Count Woronzoff in Abeharia, as stated in the *Botanical Magazine*, where it was recently figured. Dr. Lindley also stated that 25 guineas were demanded for a plant of it. *P. Broteri* had rich crimson flowers with yellow anthers, the plant dwarf and distinct. *P. Brownii* is very distinct; it is planted in the rock-garden, and is a neat-habited little plant, but so far we have failed to flower it. *P. Russi* had well formed crimson flowers, with a mass of bright yellow anthers; the leaf and plant distinct. The true *P. albiflora* and varieties *laciniata* and *rubescens* flowered freely, and are the most beautiful amongst the single Pæonies.

They are all very easily grown, and I do not care to coddle them up in pots; even the little *P. Brownii* takes its chance out-of-doors. The border where they are growing has been deeply trenched and well manured. Some decayed manure was also placed on the surface during the winter, but even this is not necessary, as they seem to be all perfectly hardy. They need only to be left alone and will in time grow into large specimens, and the distinct foliage as well as the flowers look well amongst those of other herbaceous plants in a mixed border. *J. Douglas in the London Garden.*

Cœlogyne Dayana.—This is a very handsome Orchid, with inflorescence much in the way of *C. Massangeana*, but it differs in the growth in having long, narrow, pyriform bulbs, bearing two oblong, acuminate leaves. The racemes are pendulous, sometimes three feet long and many-flowered; a plant in flower with us now has eighty-four flowers on three racemes; as seen in this condition it forms a particularly attractive object. The flowers, about two inches across, are of a light ochre yellow, while the lip, of the same color, is curiously marked with dark brown. It is a recent introduction from Borneo, and is named in honor of the late Mr. Day, a great lover of this class of plants. This species requires very liberal treatment during the growing season, and to insure good spikes of bloom, it should have a thorough rest, by reducing the water supply to a minimum.

Zygopetalum (*Promenæa*) *citrinum*, a charming little Orchid, growing in a compact mass three to four inches high, both leaves and bulbs being of a grayish-green color. The drooping scapes bear a single flower of rich yellow, with a blotch of crimson in the front. This is a species that is not often seen in collections, and yet it will well repay cultivation, being extremely free flowering, and taking up so little room. It grows freely in the Odontoglossum house in equal parts of peat and moss, baskets being preferable to pots. It was introduced about fifty years ago from Brazil.

Cattleya Gaskelliana.—Numerous examples of this fine species are now in flower, and we find it very valuable for filling up the gap between the flowering of *C. Trianæ* and *C. Eldorado*, as it is much freer to bloom than *C. Gigas*, which is in season now. It is undoubtedly only a geographical form of *C. Warneri*, which it closely resembles, though there is a great variation in the color of the flowers. They are usually of a pale amethyst, with a deep purple blotch on the front lobe of the lip. The form with white flowers is very rare. This species was introduced from Venezuela about five years since. *Cattleya speciocissima*, also from the same locality, is now in flower, and though not as large and showy as its congener, it is very attractive and exceedingly welcome at this dull season. *F. Goldring.*

Kenwood, New York.

The Rock-Garden.—It too often happens that gardeners leave the filling up of vacancies in the rock-garden until after the bedding season is over and then plant in what odds and ends are left. This seems to show a lack of interest in a department of gardening which deserves careful attention, if attempted at all. In summer-time plants in the open air are far more appreciated than those under glass. We see bedding plants all the winter in the green-house and all summer in the flower-garden proper, and, to say the least, the rock-garden should be kept as natural as possible by planting only what is appropriate. The best thing to do in the above case is to grow a few showy, dwarf annuals, and fill them in as vacancies occur. The following are useful for this purpose: *Zinnia Haageana, Nierembergia gracilis, Statice Suworowi, Phacelia campanularia, Ionopsidium acaule* and *Limnanthes Douglasii*. The latter plant can be had in bloom very early in spring by sowing in August or September, and is often used for spring bedding. All the above may be raised in heat, or in the open border after the 1st of May. The list might be supplemented considerably, but these we find sufficient for our purpose. *T. D. Hatfield.*

[The introduction of bedding plants like Scarlet Geranium or Coleus into the rock-garden for summer decoration is not more inappropriate than the use of showy flowered border annuals for the same purpose. Plants of either of these classes cannot fail to produce inharmonious and therefore unpleasing and unsatisfactory effects in connection with the proper inhabitants of the rock-garden, which by a judicious selection of hardy plants and by the free use of hardy Ferns can be made attractive and interesting throughout the season.—Ed.]

A Good Rose.—Among the comparatively recent additions to the list of useful Roses, "Papa Gontier" seems to be growing in favor on account of its many good qualities. Some fault has been found with it, because of its having lost too much of its lower foliage during the latter part of the winter, so as to render the plants rather unsightly. But though this feature has been noticed in a number of cases, yet it has not been proved to be a characteristic of the variety, because there are many exceptions to the rule. In some instances it is quite possible that the plants may have been overwatered, or perhaps they may have been kept too warm; either of which would be likely to produce such a result. However, the fact remains, that Papa Gontier will be largely planted during the present season, and will also be much used for summer-flowering, both out-of-doors and under glass. The flowers are not only much larger, but have much more substance than the old and popular Bon Silene.

This subject of summer flowering suggests the reminder that one who wishes to cut Roses of fair quality during the summer months, must give his plants attention at the proper time, and not allow the weeds as well as the Roses to take care of themselves after he lets out his fires in the spring. Extremes of temperature should be avoided in summer as in winter, and thorough, though careful ventilation, and plenty of water, should be given in bright weather, if mildew is to be avoided. *W.*

Weeds.—At this season of the year the principal and most important operation in the garden is the destruction of weeds. Labor and money will be saved if all surfaces of exposed soil are stirred so frequently that the germinating seeds of weeds are killed before the plants appear above ground. It is hard to realize this always, or to command labor enough in a large garden to make it always practicable, still it is the only economical way in which to deal with weeds. In the case of Purslane, for example, if the plants are allowed to grow large enough to make any appearance above ground, they have to be hoed or pulled up and then raked into piles and carried away and burned or buried deep, or they will root again after the first shower, and the work will have to be done over again. The Purslane, the Shepherd's Purse, the Chickweed, and some other weeds, flower and ripen their seed in a surprisingly short time after they appear, and if the gardener allows them to get any start of him his land will soon get full of their seeds, which will live for a long time under ground and germinate as soon as cultivation brings them near enough to the surface. Theoretically, there never should be a weed of any kind in a garden, but in this climate of hot suns and frequent rains there will always be more or less of them. They should not be fed, however, to pigs, as is often done, as the seeds then get into the manure pile and so increase the work of succeeding years. In large gardens vegetables should, wherever possible, be planted in rows, so that labor may be saved in cultivating them and in destroying the weeds by the use of horse power.

Armeria vulgaris is an old-fashioned garden plant which thrives in almost any soil or situation, but succeeds best on a moist subsoil. It is so common in some parts of England that it is used as an edging for walks in the same way as the lovely *Gentiana acaulis* is used in Scotland. There are several beautiful varieties and all make capital rock plants. The colors vary from white to pale rose and rosy purple. *A. dianthoides, A. juncea* and others are classed as specifically distinct, but when grown side by side, raised seedlings of each show every conceivable intermediate form, with regard to habit and color of flower. They must be propagated by division if the types are to be kept constant. *T. D. H.*

Plant Notes.

The Double-Flowered Chinese Crab Apple.

OUR illustration represents a flowering branch of this ornamental tree, the *Pyrus spectabilis* of Aiton, a native of northern China and an old inhabitant of gardens, although now less often planted in this country than some of the forms of *Pyrus baccata*, especially those of Japanese-garden origin, of which one of the most useful was figured in an earlier issue of this journal (6), and from which *Pyrus spectabilis* may be distinguished by its persistent calyx lobes, which remain upon the fruit until it decays.

The Chinese Crab Apple, as seen in gardens, is a small shrub-like tree, twenty to twenty-five feet high, with rigid, upright, light gray branches, oval-oblong, finely serrate, leathery leaves, dark green above, paler on the under surface, which, as well as the petioles and young shoots, is covered, especially along the mid-rib, with a short, fine tomentum. The flowers are semi-double, nearly an inch across when expanded, pale rose colored, fading white, and much lighter colored than the large, showy, bright red flower-buds. They appear here the middle of May, and are produced with the greatest profusion along the entire length of the branches in sessile, many-flowered umbels. The fruit, which rarely sets here, barely exceeds half an inch in diameter; it is round and somewhat angled, or often oblong, and when fully ripe of a dull yellow color, and hardly edible. The Chinese Crab is propagated by grafting on the common Apple tree. There are excellent colored figures of this plant in the Nouveau Duhamel (vi., *t.* 42, f. 2) and in Watson's "*Dendrologia Britannica* (i., *t.* 50, the flower with the normal number of petals).

Fig. 44.—The Double-flowered Chinese Crab Apple.

Loudon's remark of the Chinese Apple that "no garden, whether large or small, ought to be without this tree," still holds good, notwithstanding all the introductions of the last half century. *C. S. S.*

Notes from the Arnold Arboretum.

Genista tinctoria, the Woad Wax, is a dwarf European shrub, one to two feet high, with creeping root-stalks, and upright branches, clothed with dark green, simple leaves, and now terminated with spicate racemes of handsome yellow flowers. It is a plant of no little beauty, very tenacious of life, and capable of spreading rapidly, under favorable conditions, over large areas. In some parts of Essex County, in this State, it has become thoroughly naturalized, and has taken possession of thousands of acres of rocky upland, from which it is practically impossible to exterminate it, and which is thus ruined for pasturage or for tillage. These hills, when the Woad Wax is in flower, seem to have been covered with a golden carpet, and present an appearance quite unlike anything which can be seen in any other part of the United States. There is a tradition that the Woad Wax was introduced into the United States by Governor John Endicott, of Salem, who planted the famous Pear tree which still bears his name, and one of the pioneers of American horticulture, whose garden and farm were well known in the colony before the middle of the seventeenth century. There is, I believe, no other instance in the United States where a foreign shrub has taken such complete possession of so large an area, or has so entirely driven out the natural occupants of the soil. All parts of this plant, especially the leaves and branches, have been used in Europe by dyers to produce a yellow color, although it does not appear to have been cultivated for this purpose, and it was probably the beauty of the flowers which gained for it a place in Governor Endicott's garden, and so led to the ruin of the Essex hills. A variety of this plant, with taller and more slender stems, and

which does not bloom until several days later, is the var. *Sibirica*, once considered a distinct species. This variety, according to Loudon ("*Arboretum*," ii. 584), attains, in its native country, a height of five or six feet. Here it barely exceeds two feet. Two plants grown in the Arboretum as *G. lata* (*elata?*) and *G. dumatorum* are clearly the same as the Siberian variety. Some attention has been given of late years to the Woad Wax by planters wishing to cover exposed or sterile ground with a low, hardy, fast-spreading under-shrub. It is well suited for this purpose, but care should be taken that it is not planted in situations whence it can overrun and take possession of valuable land, as it will prove a difficult weed to exterminate when once it has fairly established itself.

Cytisus nigricans is one of the most desirable of the dwarf, yellow-flowered, hardy shrubs of the Pea Family, which blooms at this period of the year. It reaches here a height of a couple of feet, with erect, slender, twiggy branches, delicate leaves with three leaflets, pubescent on the under surface, as are the young shoots, calyxes and pods, and elongated, slender, terminal, erect racemes of bright flowers. The whole plant turns black in drying, a fact to which it owes its specific name. It is a native of central Europe, and has been cultivated on account of its beauty for more than a century and a half, although rarely seen in American gardens. *Cytisus capitatus* is in bloom at the same time. A less graceful plant than the last, it is not without its value. Its habit is compact and good, the flowers, in dense, terminal heads, are showy, and it remains in bloom during several weeks. The erect branches, two feet tall, are hispid, like the broad leaflets. It is a native of the mountainous parts of southern Europe and has long been known in gardens.

Free-growing, twining plants, perfectly hardy in this climate, are not very abundant; the introduction, therefore, of a plant of this character of the first class, like *Actinidia polygama*, is a matter of some importance. Actinidia (from *aktin*, a ray, the styles radiating like the spokes of a wheel) is a genus of Asiatic plants, many of them twining, of the *Ternstræmiaceæ* or Camellia Family, of which Gordonia and Stuartia, two genera of woody plants found in the Southern States, are the North American representatives. They have simple deciduous leaves, axillary clusters of white, fragrant flowers, and a fleshy fruit composed of the coalescing carpels. Five or six species are described. Several Japanese species or varieties are cultivated in the Arboretum, but none of them except *A. polygama* have been sufficiently tested yet to warrant any statement of their merits. *A. polygama* is a strong-growing, vigorous plant, which in good soil will soon reach a height of twenty feet or more, and cover a large space with its vigorous branches, which are densely clothed with handsome, dark green, coriaceous, broadly-acuminate leaves, three or four inches long, with sharp, slender, remote teeth, and contracted into a long, slender point. With the exception of a few hairs on the under side of the mid-rib, they are quite glabrous, and are borne on stout, bright red petioles half their length. The white, fragrant flowers, half an inch across, make but little show, being almost concealed in the abundant foliage. The fruit, which has ripened in several gardens in different parts of Massachusetts, is as large as a pigeon's egg. It is edible and has an agreeable flavor; and is said to be esteemed by the Japanese. The Actinidia, however, will be cultivated in this country for its bold habit and handsome foliage rather than for its fruit.

Although they produce far less showy and conspicuous flowers than their Asiatic congeners, the two North American species of Diervilla or Bush Honeysuckle, are worth growing, especially in wild parts of the garden. *D. trifida* is a common northern shrub, found from Newfoundland to the Saskatchewan, and extending through the Northern States to Kentucky and the Alleghany Mountains. It often forms dense, low masses of shrubbery on the borders of the forest. It has ovate-oblong, petioled leaves, and axillary peduncles, bearing three small flowers, with narrow, funnelformed, yellow corollas. *D. sessilifolia* (the *D. splendens* of many foreign collections) is a handsomer plant, with sessile leaves, and many-flowered cymes of larger and more showy yellow flowers. It is much more rare and much less widely distributed than the first species, being confined to a few localities on the high mountains of North Carolina and Tennessee, where it inhabits rocky woods and banks.

Few ornaments of the garden are more beautiful or more satisfactory than the old-fashioned twining Dutch Monthly Honeysuckle, once common on every cottage porch, but now, for some reason, greatly neglected and rarely seen in this country. It is a variety of the common European Honeysuckle or Woodbine of England (*Lonicera Periclymenum*), which some authors call the var. Belgicum. It has smooth, purplish branches, oblong-oval leaves, dark green and shining above, and pale on the lower surface. The deliciously fragrant flowers, in terminal heads, are reddish or purple on the outside and yellow within. This plant is perfectly hardy, and remains in flower nearly all summer.

Cornus asperifolia is in bloom. It is a western and southern species, with the habit and general appearance of *C. stonolifera*, but the branches are brown instead of red, and roughly pubescent, as are the leaves on their upper surface. This is a tall, hardy species, but not better in any particular for general planting than our common Eastern Dogwoods of the same class.

A Japanese Bramble (*Rubus trifidus*) is worth a place in the garden on account of the rose colored petals, which make the flower-clusters showy at this season of the year. It is a robust, vigorous plant, with semi-erect stems, clothed with ample, deeply divided leaves. More popular as a garden plant will be, no doubt, the double-flowered variety of the common European Bramble (*Rubus fruticosus*), with its large double or semi-double white flowers, tinged with pink, in which a large part of the stamens have developed into petals. In common with nearly all the innumerable varieties of the European Bramble, it is a very hardy and vigorous plant, growing and spreading rapidly. The variety upon which the leaflets are deeply cut and divided (*Rubus laciniatus*) is a handsome plant, useful for covering rocky banks and other waste places in the garden; it might be seen more often to advantage in this country.

Among the late flowering Spiræas now in bloom, the most showy is *S. Douglasii*. It is a native of the North-west Coast, from Puget Sound to northern California, and with two eastern American species (*S. salicifolia* and *S. tomentosa*) forms Koch's small section *Spiraria*, distinguished by its panicled flowers. *S. Douglasii* has simple erect stems, three feet or less high, covered with oval or oblong, coarsely serrated, simple leaves, densely coated on the under surface with white tomentum, and terminated with a dense, elongated panicle of very handsome, bright rose-colored flowers, which remain a long time in perfection. This is one of the showiest of the late blooming shrubs in the collection. *Spiræa salicifolia*, the Meadow Sweet of the Eastern States, is a variable and widely distributed plant, being found in eastern North America, where it bears white flowers sometimes shaded with pink, and from western Europe through Siberia to Mongolia, Manchuria and Japan. In the old world variety the flowers are pink or rose colored. A great deal of attention seems to have been paid to the cultivation and improvement of this plant in some parts of Europe, more especially in Russia, and many varieties (under innumerable names) have been sent to the Arboretum from the St. Petersburg and other Continental gardens. Some of these show traces of the blood of *S. Douglasii*, and many of them are distinct in the color of the flowers, and in their time of blooming, several weeks elapsing between the time the first and the last of the series expand their flowers. The strongest growing and perhaps the showiest of these varieties is that known in many European gardens as *S. Bethlehensis*, a vigorous plant, probably a hybrid, with large, showy panicles of flowers. *S. Billardi*, raised many years ago by the French horticulturist whose name it bears, is worth cultivating also for its showy flowers.

The last of the Spindle-trees (*Euonymus*) to flower here is the North American Burning-Bush or Wahoo (*E. atropurpureus*), a tall shrub or shrub-like tree, found from western New York to Wisconsin and in the Southern States. The flowers are small, very dark purple, and not showy. In the autumn, however, when it is covered with its abundant bright crimson fruit, drooping on long peduncles, this little tree is a beautiful object, although less showy, perhaps, than some of the varieties of the European Spindle-tree, in which long cultivation and careful selection have developed large and showy forms of fruit. The Wahoo (which must not be confounded with the Elm (*Ulmus alata*), which is popularly known in the Southern States as "The Wahoo") is a not infrequent inhabitant of old-fashioned American gardens.

Northern swamps are now white with the flowers of the Swamp Honeysuckle, *Rhododendron* (*Azalea*) *viscosum*, the last of the whole family to flower here, and well worth a place in the garden, on account of its late and deliciously fragrant clammy flowers. It is found from Maine to Kentucky, but generally near the coast, and sometimes grows to a height of eight or ten feet. It requires the same treatment and can be grown as easily as the other plants of its class.

July 11th. *J.*

The Forest

The Forests of Europe as Seen by an American Lumberman.

WHILE in Europe in 1885 I noticed in Germany, particularly on the lower Elbe, the Spree and generally over the old worn out lands, that much was being done to preserve the old and replant new forest trees in regions from which 200 or 300 years since the forests had been destroyed. At the schools of forestry intelligent men asked, "Why do not you Americans learn by our errors and do something to save your forests now?" The only reply I could make was that I hoped we might begin to save before we were driven to it by necessity as other nations have been.

The new forests over Prussia from Hamburg by way of Berlin through to Breslau and in the circle with the distance from Berlin to Dresden as a radius are doing well. It is common to see plantations largely of pine of from forty to six hundred acres ten, fifteen, thirty-five and fifty years old, all within a few miles of each other, the different heights of trees on the land-lines sharply showing their different ages. Some of the older trees are sixty feet high and eighteen to twenty-five inches in diameter, all growing very even and thick. These plantations are kept clean, with the lower dead branches broken off for use by poor people as fuel, and all this on land that looked light and as if it had been run out like the "old fields" of the Carolinas and Virginia. Many of those new forests in Germany were being cut clear for the timber, lumber and wood, others were being preserved with the best trees cut out and sold under care of foresters. The land itself was being revived and was approaching a virgin condition again. These new forests now furnish the timber of the country.

In the forests of Saxony and Bohemia, up the Elbe and Spree, more particularly of Saxon Switzerland and up the river Elbe into Bohemia, I visited some twenty or thirty mills that were sawing timber grown upon the streams tributary to these waters. Some good trees were worked up here thirty and thirty-six inches at the butt end, and cut the whole length, say sixty to seventy feet long. In the larger mills the whole log is run through gang saws, and then the product is tied up as one log by itself and so sent to market slab and all. The saws used were thinner than ours. Very small logs, too, often no more than five inches in diameter, are cut. The price of this lumber was no more than it is in the Middle or New England States, but of course the Europeans use less lumber than we do. From an extensive examination of Germany, Austria, Belgium and north-eastern France, northern Switzerland and the Duchy of Baden, I should say that under the wonderful care and intelligence of the present system the forests were quite keeping up with the demand for the common lumber-wants of the country, and some even being shipped to Portugal, Spain and the Mediterranean. I visited the saw mills on the Necker and the Rhine, climbed the Feldberg and the Taunus, and saw foresters carefully cutting and sawing the windfall trees and planting a new one for every tree taken out. The Government is doing so much for the forests everywhere. In the little province of Baden, smaller than some of our New England or New York counties, over 100 men are employed and paid by the Government to care for the woodlands. In Saxony and Bohemia I went to the homes of the foresters and found some of them experts in various branches of natural history. The heads of departments were graduates of some school of forestry, and they were advanced as they deserved and held their offices for life or good behavior. The Germans have waited until their timber was cut off before they began to replace it, but they are now prosecuting the work with rare patience and skill.

In the summer of 1887 I visited again the British Isles, and examined the lumber industry of the eastern coast, of Edinburgh particularly. I saw much of the lumber of Norway and eastern Russia as it was brought into England. There is little large or wide timber left in those countries. Much the same process of stripping forest areas has gone on there as in the countries before named. There is much less timber in Norway, Sweden and Russia available than is generally supposed and its quality is poorer—sound enough, but hard and full of knots, very much like the lumber of lower Europe. Evidently the virgin forests of the north temperate zone are in North America. The impression created by the European forest examination made by me in 1885 and 1887 is this: Trees will grow if properly planted and cared for, but it is like the first attempts in raising the tame grasses from the old farms of the east in the virgin prairies of the west. The soil seems rich enough to grow Timothy, but the cultivated grass will not flourish until the wild "nature" of the soil is subdued by many plowings and trampings of the tame cattle; even so, when land has been stripped of woods and worn by farm crops, it is hard to re-cover it with forest. Just here the aid of science is needed. Here is work for the schools of forestry that have done so much for France and Germany. The forest restoration of Europe is due to science, and is accomplished by men trained for the purpose.

Again the more regularly distributed rainfall of western Europe, especially in the north and Baltic countries, is more favorable to the restoration of forests than in America generally, though in some parts of Europe the soil is so much worn out it is almost impossible to make trees grow. Indeed, all over Europe, and especially east and south of the Mediterranean, and over most of the older settled portions of the Eastern Hemisphere, it seems to have been the especial mission of the Aryan race to destroy and remove the forests from the face of the earth.

In the lumber yards of England, Scotland, Hamburg, Bremen, Antwerp and France I saw much of the timber from America. Our forests are drawn upon to supply the waste of centuries in the old world. It is time we began to think of husbanding our own resources. *H. C. Putnam.*

Eau Claire, Wisconsin.

Correspondence

To the Editor of Garden and Forest:

Sir.—The writer was much interested in the editorial, "Hardy Fruit Trees," in your issue of June 27th, especially as the conclusions reached coincided closely with those reached in my thesis on "The Crossing and Hybridizing of Fruits," prepared for graduation last year at the Iowa Agricultural College. In American fruit-breeding recourse has been had as yet to native species only in the case of Grapes, Raspberries, Plums and Strawberries. The results have been very encouraging, but a vast field of work still lies fallow. Even with the fruits mentioned, much work remains to be done with the local forms found in the extreme north-western Prairie States. The *Prunus Americana* of the eastern and southern States differs greatly in hardiness from the same species as found in Dakota. This illustrates the fact that the coming orchard and small fruits of the extreme north-western section of the Mississippi valley must originate from the local form of the native species and from varieties imported from similar extreme climates, such as Russia, where many centuries of natural selection have weeded out the tender plants.

Our native species of Cherry, Apple, Gooseberry, etc., all lie untouched, awaiting the hand of the horticultural experimenter. Of the work done in preceding centuries we can take advantage by crossing and hybridizing, which, in fact, are only methods of abridging the process of evolution, by introducing potent causes of variation. In all cases cultivated species from as extreme climates as possible should be used to infuse the desired quality and size.

Besides those mentioned, a considerable number of other native species, such as the Papaw and Persimmon, may be improved by cultivation, selection, and, wherever possible, by hybridization.

This is a proper field of work for the new Agricultural Experiment Stations, and is attractive alike from a scientific as

well as a practical standpoint. It would contribute greatly to our knowledge of the limits of species.

The writer last year sent circulars of inquiry to a large number of experimenters in the United States and Canada, and thus collected a considerable amount of valuable information bearing upon this subject. The general opinion greatly favored crossing and hybridizing as a means of improving our fruit trees and plants.

The work with Russian and American Apples, Cherries and Plums has been begun by Professor J. L. Budd at the Iowa Agricultural College, and gives promise of valuable results.

Atlantic, Iowa. *N. E. Hansen.*

To the Editor of GARDEN AND FOREST:

Sir.—I have been interested in the discussions relating to terraces and verandas and other additions to dwelling houses, and have been waiting for some one to suggest a better arrangement than any yet mentioned. This is a terrace with a tiled floor and a frame over it, upon which, during the summer, an awning can be let down in the day-time and rolled back in the evening, while the whole upper structure can be entirely taken away in winter. In summer a terrace of this sort will be cooler by day than one that is not shaded, and in the evening it will be cooler than a veranda, because there will be nothing overhead when the awning is rolled back. In the winter a veranda shades the windows, and the removal of the frame and awning from the terrace freely admits the sunshine, when every ray is needed.

With such an arrangement the terrace can be turned into a summer conservatory for many of the tender evergreens and other plants that would perish under the broiling sun, and for any fine green-house plants, like specimen Palms or plants in flower. *B.*

Newport, R. I.

To the Editor of GARDEN AND FOREST:

Sir.—The Itasca Basin, mother of the Mississippi, proves as full blooded as her offspring has indicated. A timbered surface, with porous soil seldom frozen and deeply underlying clay beds, collects the drainage of many square miles and pours this sheet of spring water into the lake and its feeders. Every drop in this ideal reservoir is needed for navigation, manufactures and city water supply.

Clearing the land will cause deep freezing and quick melting of the snow, running the snow water off on the surface with a freshet.

Clearing has commenced, and this land will be stripped, unless we learn to feel, with the Swiss, that the trees which hold the avalanche bleed when they are cut. *H. B. A.*

Recent Publications.

Homestead Highways. By Herbert Milton Sylvester. Boston: Ticknor & Co.

Mr. Sylvester, who dates his book from Quincy, Mass., but whose memory dwells amid the hills and woodlands of New Hampshire, found many pleased readers, a few years ago, for a little book called "Prose Pastorals." The same title might just as well have been used for his present volume, which, through its seven chapters dealing now with nature chiefly and again chiefly with rural mankind, preserves as the key-note a spirit of calm, open-eyed, sensitive and not unpoetic meditation. "An Old-Fashioned Festival" treats in a fresh and charming way of the oft-described scenes of Thanksgiving Day and "A Winter Resort" pictures the country school. But the chapters on out-door life are perhaps still more attractive, notably the two on "Running Water" and on "A Snug Corner" of the woods in winter.

In "*Society in Rome Under the Cæsars,*" recently published, Mr. W. R. Inge, M.A., speaks of the parks and gardens of the Romans in the first century as follows: "Partly from want of appreciation of open park land, partly from paucity of shrubs and flowers, neither park nor garden was in keeping with the splendor within [the house]. The flowers were of simple kinds and lacked variety, but they were grown in large quantities, for the graceful custom of wearing garlands, and even the rites of religion, made a constant and plentiful supply necessary. Roses, Lilies and Violets were the only flowers cultivated on a large scale. Green-houses and hot-houses for flowers and fruits were first introduced in our period, and, of course, were soon very common. Winter Grapes and Melons were grown under glass, and we hear of forced* Roses and Lilies. Fruit trees were planted, sometimes among other trees, sometimes in orchards. The Romans were well supplied with fruit. They had several kinds of Apples, no less than thirty sorts of Pears, Plums, Peaches, Pomegranates, Cherries, Figs, Quinces, Nuts, Chestnuts, Medlars, Mulberries, Almonds and Strawberries. Their ornamental trees were few in number, and this doubtless led to the artificial shaping, before alluded to, which was carried to absurd lengths at the close of the first century. The garden was always intersected by a path, which could be used for riding, walking, or taking the air in a litter. Porticoes for lounging in the open air, and elaborate baths, were comforts not likely to be forgotten in Italy."

* "*Festinate*" Mart., 13, 127. See also on the subject Mart., 8, 14; 4, 21, 5.

Periodical Literature.

Dr. C. C. Parry, the distinguished botanical explorer, contributes to the June number of the *Overland Monthly* (also issued separately) an interesting account of Rancho Chico, General John Bidwell's California Ranch, on the lower Sacramento, near the site of the historical Sutter's Fort. It has long been known as one of the best and most productive farms of the Pacific Slope, abounding in features of natural beauty and famous for the hospitality of its enlightened proprietor. Dr. Parry describes pleasantly the history and the situation of Rancho Chico, the native plants which adorn it and the crops it is made to bring forth. The Ranch is situated in one of the best fruit producing regions in the state. "The Fig and the Olive, the native Walnut and its Asiatic relative, flourish in unrestrained luxuriance. There is no other section in which the Cherry bears more plentifully or with greater certainty of return." One tree in the orchard produced last year nearly a ton of fruit, which sold for an average of ten cents a pound, making nearly two hundred dollars as the return for a single tree in one season. "In May the Apricot begins to yield its golden fruit, and before its day is passed, Apples, Pears, Peaches, Plums, Almonds, Nectarines, Prunes, Quinces and the endless variety of Grapes come one after another to fill their places in an endless round. Aside from table Grapes, all the vineyard product of the ranch is made up into raisins. There is something in the quality of climate and soil that is peculiarly favorable to the culture of the Malaga, and the finished product is sweeter than the average and far excels the more famous Fresno brands in the thinness and tenderness of skin."

There are 25,000 acres in General Bidwell's farm, and some idea of its fertility and of the extent to which it is cultivated, will be gained from the following enumeration of the average crops which it produces: 100,000 bushels of wheat and 50,000 bushels of barley; 1,000 tons of hay; the meat product requires the slaughter of 300 cattle and 1,200 sheep; a dairy of 150 cows produces a gross income of $1,000 a month. The cannery turns out 370,000 two-pound cans of fruit, not including great quantities of dried orchard fruits. During the height of the fruit season more than 500 persons find employment on the ranch. The most interesting of the numerous illustrations joined to this article is that of a noble specimen of the deciduous White Oak of California (*Quercus lobata*), known as the "Sir Joseph Hooker Oak," in honor of the English botanist who visited General Bidwell during his journey in this country in 1877. The photograph from which the illustration is made was taken in winter, and exhibits the graceful pendulous ramification of this tree much more satisfactorily than we remember to have seen it depicted before.

Recent Plant Portraits.

Botanical Magazine, June.—CATASETUM BUNGEROTHI, *t.* 6998; a very striking, free-blooming Venezuela Orchid, with flowers varying from white, the hollow of the spur ochreous, though pale yellow-green to golden.

KOEMPFERIA SECUNDA, *t.* 6999; a common plant in the Khasia Mountains, south of the Assam valley; it has loosely tufted, leafy stems, six to ten inches high, with terminal, few-flowered spikes of showy rose-colored flowers.

HUERNIA ASPERA, *t.* 7000; *Huernia* is an African genus, distinguished from *Stapelia*, which it closely resembles in habit, by its campanulate corolla. The plants of this genus are all south African, with the exception of the species here figured, which is from Zanzibar. Its interest is botanical rather than horticultural.

PALICOUREA NICOTIANÆFOLIA, *t.* 7001.

CASSIA COQUIMBENSIS, *t.* 7002; a glabrous shrub, very common in the neighborhood of Coquimbo, in Chili, with axillary

cymes of conspicuous yellow flowers an inch and a half in diameter. It belongs to that section of this enormous genus in which the seeds are parallel to the septum in the two-valved, flattened pod.

Araucaria Cunninghami glauca (cones of), *Gardener's Chronicle*, June 2d.—From the fine specimen of the glaucous-leaved variety of the "Morton Bay Pine," grown in the Temperate House at Kew. It is an important Australian timber tree, forming vast forests in the valley of the Brisbane River.

Sabal palmetto, *Gardener's Chronicle*, June 2d.—A view of a fine group of this well known Florida tree, growing at Jupiter Inlet, on the east coast, from a photograph by Mr. James M. Codman, in the Kew Museum, although credit is not given for it to that establishment.

Pinus Canariensis; *Gardener's Chronicle*, June 7th.

Yucca filifera, *Gardener's Chronicle*, June 16th, f. 97 and 100; from photographs by Mr. James M. Codman in the Kew Museum (also without credit) and already published in Garden and Forest (April 11th, 1888).

Notes.

The Second Annual Meeting of the Illinois State Forestry Association will open at Springfield, in the State House, on the morning of the 8th of August.

Seven and a half tons of grapes to the acre is a good average yield for a California vineyard, although ten tons an acre is not an unusual crop, and, in a well authenticated instance, fifteen tons an acre have been produced.

Professor L. H. Baily, Jr., of Cornell University, sails for Europe the last of August to visit experiment stations and study the horticulture of the countries he visits. A leading object of his trip is to collect data for the completion of text-books of horticulture, which he now has partly written.

The annual excursion of the Gardeners' and Florists' Club, of Boston, was a great success, and the gardeners, who have now well earned a little leisure after the labors of spring planting, thoroughly enjoyed their sail on Massachusetts Bay and their visit to the various islands and other points of interest.

At the weekly meeting of the Massachusetts Horticutural Society on July 21st, a new white Pansy was shown, which is quite a novelty, from the fact that it is semi-double, the stamens having been changed into petals. It is of good substance, free flowering and entirely white. It will prove an acquisition for the commercial florists.

Sweet Peas have been greatly improved during the past few years. New colors of remarkable clearness and brilliancy are being constantly introduced. These flowers are great favorites at Newport, Bar Harbor, and other eastern summer resorts, and in no part of the country are they grown so successfully as in the vicinity of Boston, where they are used by the florists in great quantities.

Dutch bulb-growers having found that the sale of cut blooms of Hyacinths and Tulips, which at one time were sent to the London markets in immense quantities from the bulb-fields of Holland, interfered with the sale of bulbs, they have formed an association, the members of which agree not to sell the flowers of these plants. A boycott is established against members of the association who infringe its rules. More than 2,000 bulb-growers have already joined this association.

The railroads have manifested an unwillingness to grant to delegates to the meeting of the Society of American Florists at New York City the reduction in fares usually given to such gatherings. But, nevertheless, all indications point to an immense gathering, and the coming convention will certainly be the largest meeting of florists and gardeners ever convened in this country. Programmes and all information may be obtained by addressing Secretary Wm. J. Stewart, 67 Bromfield Street, Boston.

The Fruit Growers' Association of Ontario held their summer meeting on July 11th and 12th at Picton, Prince Edward County. Rev. Geo. Bell, LL.D., of Queen's College, Kingston, read an instructive paper on Canadian Forests, and the subject of improving fruits by hybridizing and selection was treated by Mr. P. C. Dempsey, of Albany. The meeting was largely attended, and leading specialists in various departments of fruit and flower culture and in forestry partici pated in the discussions.

Hon. Sidney Root, President of the Atlanta, Georgia, Park Commission, sends us the photograph of a fine Willow-Oak tree now standing in the grounds of E. W. March, Esq., of that city. It was carried from south-western Georgia in 1858, when its trunk was not as large as a musket-barrel. It now measures seven feet six inches in circumference three feet from the ground, and its branches extend over a circle seventy feet in diameter—a remarkable development for a tree thirty-three years from the acorn.

The New York Forestry Commission has revoked all the custodianships under which the islands of Lake George have passed into the control of a few private individuals. Many of the men who were made custodians of the islands have built fine houses, and made extensive improvements upon them, under authority granted by the Land Commissioners. The action of the Forest Commission will cause some hardship to the persons who have had the use of the state's property, but it will be approved by public sentiment.

A recent bulletin of the Ohio Experiment Station gives the most effective methods used in the Prairie States to check the migrations of the chinch bug. But after all the trapping in furrows, burning over stubble, pouring a line of coal tar about fields liable to invasion and other precautions, the devastation by this insect can hardly be held within bounds while the weather is dry. Professor Forbes estimates that in southern Illinois the losses from the depredations of the chinch bug, during five years past, have reached $25,000,000.

The fondness of the Germans for planting memorial trees is well known. Lindens are most often chosen for the purpose, this tree having gradually usurped that place in the affections of the Germanic people which was once held by the Oak and being now considered the national tree. On the occasion of a recent visit paid by General Moltke to the Spath nurseries near Berlin, he planted an American Linden, of the variety which is known in German nurseries as *Tilia Americana Moltkei*. Near the spot it occupies Prince Bismarck planted a few years ago a specimen of *Tilia argentea*—the beautiful Hungarian Linden to which reference was made in the article on the trees in Central Park recently published in this journal.

Some excitement has been caused among Orchid growers in London by the breaking up of several large collections. No fewer than five of these have been or will be dispersed within a few weeks. The first was that of the late Mr. John Day, a genuine Orchid lover, an assiduous collector of all classes of Orchids, popular or merely "botanical." It was a collection rich in species one seldom sees except in botanical collections. Then followed the small, but very choice and exceedingly well grown, collection of Dr. Duke, a devoted amateur and a true lover of his plants, and the fine collection of Mr. Southgate, at Streatham. Immediately after was sold the celebrated collection of Mr. Philbrick, an eminent lawyer, likewise a great lover of his plants, of which he had a wide and intimate knowledge, and the fifth, by far the most extensive and most important, is that formed by Mr. Lee, at Downside Leatherhead, in Surrey. This Downside collection is immense and wonderfully rich in all that is choice among Orchids, and for the most part admirably cultivated. The first portion has been disposed of at public auction and it will take eight days to sell the entire collection.

The death of the Rev. E. P. Roe, at his home at Cornwall-on-Hudson, on the 19th of July, deprives us of a collaborator who, we hoped, would do much during many years to come to interest and instruct our readers. Although Mr. Roe's reputation rested most largely upon his labors as a novelist, his horticultural works would have sufficed to win him solid popularity had they been his only productions. The best known of them is, perhaps, "Success With Small Fruits," originally published in the *Century* (then *Scribner's*) *Magazine*, and afterwards issued in book form with the same beautiful illustrations; but others of almost equal merit are "The Culture of Small Fruits" and "Play and Profit in the Garden." It was not as a *dilettante* that Mr. Roe wrote on horticultural subjects. From the year 1874 until his death he was in business as a nurseryman and fruit-grower at Cornwall, and his books were the outcome of practical experience, and chronicled actual, long continued successes. His flourishing gardens and orchards were one of the sights of Cornwall, and the generous hospitality with which he met all who were interested in like pursuits with himself will long be remembered by hundreds of his visitors. Mr. Roe was but just fifty years of age when he died, quite suddenly, of an attack of angina pectoris.